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Air show support service launched by Powervamp

Following the success of a ground power support programme at this summer's Paris Air Show, where UK manufacturer Powervamp Ltd supplied electrical power to no fewer than ten aircraft from six exhibitors, the company has announced that it will now be offering a complete short-term DC power supply rental package for similar events around the world.

The Paris contract drew on the success of previous contracts between Powervamp and the Farnborough air show organisers to provide DC ground power during the past two air shows. "The Paris Air Show contract provided the opportunity for us to prove the concept internationally on a much larger scale," says managing director Richard Roller.

"There is clearly significant demand for silent DC power," he says, "so now we've put the elements of the system together in a full commercial package, and will be offering it for hire periods of as little as a week at a time."

The exhibitors benefiting from Powervamp's DC power supply systems in Paris were Bombardier, ATR, Yakovlev, Piaggio, Embraer and Raytheon (details at end of text). Among them they used 24 of Powervamp's PS80 power modular supply units, which lie at the core of the support package.

At a typical air show, aircraft presented as static exhibits need to have their electrical and avionics systems powered up for hours at a time. Since this would not be feasible using standard on-board power, exhibitors either provide their own ground-based power supply system or, in the past, have often hired diesel generators. But this adds hugely to noise and exhaust fume pollution – a problem that can detract significantly from the appeal of the exhibits.

"Our solution avoids all this," says Powervamp's Richard Roller, "so the appeal for air frame manufacturers and suppliers is enormous." He adds: "It means they don't need to worry about noise or pollution, or about upsetting potential buyers, visitors and exhibitor support staff by having to run a generator in close proximity to the aircraft."

The PS80 power supply unit at the heart of Powervamp's solution is a compact, lightweight portable unit that delivers 80 amps of "clean" DC power. As the system is modular in design, several units can be connected in parallel to increase the total power output. Three units together, for instance, will deliver up to 240 amps at a constant 28 volts DC, and four units will deliver 320 amps. These units are positioned unobtrusively, close to each aircraft.

By providing the service on an event-wide basis, Powervamp is able to avoid reliance on a dedicated generator for each aircraft. If a suitable mains electrical supply is available on site, the company will draw on this; if not, it will provide a silent stationery AC generator that can be positioned well clear of the exhibits themselves. A power feed is laid between the electrical source and the vicinity of the aircraft, where the PS80 units are positioned, and these are connected to each aircraft via its external DC socket.

At Paris, Powervamp was able to use an existing three-phase mains supply, and dropped the output to 220 volts single-phase to feed power to the aircraft.

Not only do the PS80 units offer the flexibility of being linked in parallel to increase power output; they also benefit from the additional robustness of having a modular internal design. The 80amp output of each unit is actually produced by four separate 20amp circuit boards; so in the unlikely event of failure in a single board, the rest of the unit continues to operate.

Several of the exhibits at Paris amply demonstrated this potential. For instance, four PS80 units were used to provide power to an ATR 72-500 turboprop aircraft on display from the Italian Coast Guard. "But since the intermittent load requirement was between 220 and 300 amps, if necessary we could have 'dropped' two circuit boards, yet still met the maximum power requirements," Richard Roller says.

To support the new hire package, a stock of PS80 power supply units has been built up at Powervamp's UK headquarters in Weston-super-Mare. Where necessary, static diesel generators will be hired locally for each air show, saving on the cost of keeping them in reserve and transporting them to each location.

In addition to providing the generator and power supplies, Powervamp can also hire individual exhibitors its famous Powervamp ground power units – highly compact battery packs that can start the engines of medium-sized aircraft from small single-engined fixed-wing aircraft or helicopters to large turbofan and turbojet models. A mixture of these units and the dedicated power supplies can be run together to provide additional power for turbine starting.

Normally Powervamp's power supply systems are bought by civilian and military aircraft operators for testing, repair and crew/observer training activities. They can power a wide range of systems such as avionics, radios, inverters, thermal imaging devices and moving maps. Examples have been deployed at numerous air bases worldwide, and the equipment is also light and compact enough to be carried on board an aircraft and deployed at remote locations using local mains power.

Because of their light weight and compact size, interest has also been expressed by many air frame builders, who frequently require DC power during demonstration tours, and find they can easily transport the unit in the aircraft baggage hold with very little space or weight penalty.

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Technical note

The aircraft benefiting from Powervamp's power supply system at the Paris Air Show were:

Bombardier: Challenger 300 (4 PS80 units), a Lear 40 (2 units) and a Q400 (3 units)

ATR: ATR 42 (3 units), ATR 72-500 (4 units)

Yakovlev: YAK 130 (1 unit)

Piaggio: Piaggio 180 (2 units)

Embraer: Legacy ERJ 135 (3 units)

Raytheon: Kingair 350 (2 units), turboprop trainer (1 unit)

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Note to editors

Powervamp Ltd has been supplying ground power systems to the aviation industry since the mid-1990s, and is a recognised world leader in the market. A large number of Powervamp-built GPUs and power supply units are in use with both military and civilian aircraft and airport operators worldwide.

The Powervamp all-weather aviation range of power packs is notable for its high power, modular design, rugged construction, ease of use and easy servicing. It is suitable for starting anything from the smallest single-engined helicopter or light aircraft to much larger turboprop and turbofan engines on corporate jets. Self-contained generators are also available.

Powervamp also supplies a range of related equipment including wiring harnesses, connectors, trolleys for handling multiple units, and aircraft landing lights.

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